A PROPOSED RESEARCH STUDY:

"The Relation of Research and Technical Training in the U.S.S.R. to their Scientific and Technological Potential".

It is proposed to select, collect, evaluate and assemble for presentation all available data from the U.S.S.R. essential to the preparation of a series of reference manuals dealing with the structure of Russian education, science and technology. These manuals to meet the following general requirements:

1. These manuals should include only such types of data which are essential to all research projects dealing with any evaluation of the Russian scientific or technological potential.
2. Since the Russian organization is extremely fluid, these manuals should be prepared in such form (possibly loose-leaf) that they can be kept up-to-date at all times by the extraction, substitution or addition of pages as new or additional information becomes available.
3. These manuals should be complete enough so that when furnished to competent personnel on any project doing research on any phase of the Russian scientific-technological potential, that such estimates of potential can readily take account of the research-education factors in arriving at any individual estimate, without unnecessary loss of time and funds and eliminating duplication of effort.

The Critical Necessity for this Program

Exclusive of a knowledge of the language, history and politics, the information most needed by all those who attempt to make an evaluation of the Russian scientific-technological potential, for the ultimate benefit of those who must make small policy decisions based upon these evaluations, involves two factors; the

Russian educational-training system and thorough acquaintance with the intricacies of their scientific-research and technological organization. Without appreciation of the details and inter-relationships of these factors, no sound evaluation of the Russian scientific potential can possibly be made.

At the present time intelligence and defense agencies in the federal government are supporting many studies whose purposes are to attempt to evaluate the Russian scientific potential in individual and specialized phases of science. Each of these projects after a period of study and effort makes the same discoveries; namely, that

(1) the Russian educational system is very different from that in the U.S.A., and that direct comparisons are both difficult and dangerous;

(2) that the structure of Russian science and technology not only differs from that of the U.S.A., but is infinitely more complex in some of its aspects;

(3) that Russian scientific publications far exceed those of the U.S.A. in amount and;

(4) that the so called "reference tools", used for such studies of U.S.A. conditions, are not available for research work on Russian studies.

The result is that each project, before dealing with its own specialized field, has to spend valuable time and effort in collecting and analyzing data pertinent to general conditions in science and education. To a large degree, then, effort is being duplicated and wasted each time a new project involving any study of the work of a specialized scientific field in the U.S.S.R. is put into effect.

Another obvious and corollary fact is that there are far too few able scientists and engineers in this country who can read the Russian language and, likewise, there are far too few translators with scientific backgrounds.

This proposed project would seek to alleviate some of these problems. If accomplished the result would be a series of reference manuals dealing with the structure of Russian education, science and technology, the contents of which would provide the necessary background of the Russian educational-research-technological structure for any current or future study or re-evaluation of specialized fields of Russian science and technology.

Approach to the Problem

(1) Educational System. If we restrict our attention to what the Russians call higher education, we shall have to consider about 1,000 organizations of university and college level. Eliminating schools of medicine, physical culture, teachers colleges, agriculture and veterinary schools, etc. We can narrow down this list to some 200 institutions where training in science and technology is offered.

A study of this sort is necessary not only to account for the large number of scientists available in the U.S.S.R., but also in view of the fact that much research in science and technology is done in educational institutions. In fact, professors, by statute, are supposed to spend half of their time in research.

Much information along these lines has already been collected here and undoubtedly much further information can be found.

The detailed plan of work can be formulated as follows:

(1) History, organization, program of schools.

(2) Enrollment, teaching personnel.

(3) Area of emphasis in work, connection with specific industrial organizations.

(4) From above concrete data relating to individual schools a general summary can be made covering the subject, such as:

(a) total enrollment, and its trends in various specialties,

(b) position of teaching personnel, their connection with professional life, security, overlapping duties, etc.

(c) Effectiveness of the Russian system.

(2) System of Research Institutes. There are at least 1,000 organizations that contain in their title the word Institute. However, if we take all research units such as laboratories, bureaus, commissions, councils, etc. the number is something like 3,500.

A closer look at this situation discloses the fact that there is a great variety of Research Institutes, both in regard to the number of people employed and in regard to their functions. Moreover, many research institutes have a training program for higher degrees (candidate and doctor), so that training and research are very closely interrelated.

The following types of institutes may be mentioned:

(1) Research: Institutes attached to Academies of Science, Universities, Technological Schools.

(2) Applied Research for specific and often restricted fields: (Such as Institute of Optics, Institute of Ferrous Metallurgy, etc.)

(3) Ministry Institutes, attached to specific ministries.

(4) Military Institutes, attached to Military Academies. Academy of Artillery has several of such.

(5) Planning Institutes in which plans and specifications for particular industries are worked out. This may be, for instance, a design for a whole metallurgical plant.

(6) Experimental Institutes in which the main emphasis is placed on the experimental approach.

(7) Various combinations of above, such as Research and Planning Institutes, Research and Experimental Institutes, etc.

(8) Secret Institutes of which very little is known, except their identifying number and sphere of activity.

(9) Laboratories at Large Factories: Some of these have hundreds of scientific and technical personnel on their staff and in many respects perform functions of research institutes along specialized lines.

The study of these "institutes" should proceed more or less along the same lines as for the organisations in the educational system: that is, data on personnel, programs, etc. to be collected and organized. However, the peculiar difficulty about research institutes is their lack of stability. Some of them can be traced back to 1920, but most of them are the result of reorganization of older institutes. A laboratory of one institute is taken out and combined with several laboratories of other institutes, and a new institute is formed. The parent institutes are reorganized into a new institute with different duties and a different name. Tracing these institutes is very involved and time-consuming since most of the information is found in a form of abbreviations. Thus one does not often see in Russian literature Nauchno-Issledovatel'skiy Institut Zemnogo Magnetizma (Scientific Research Institute of Terrestrial Magnetism) but only NIIZM. We must multiply this example by a factor of several thousand to get the idea of complexity of the situation.

If we take as another example, the Institute of Geophysics of the Academy of Sciences, we will find that it was formed only in 1947 by merging two institutes: Institute of Seismology (existing since 1928) and Institute of Theoretical Geophysics (existing since 1938). It is therefore necessary to know something about the history of these research institutes.

A study of research institutes of different kinds ought to give the following:

1. A list of active institutes with their history, functions, etc.
2. A list of defunct institutes.
3. A general survey of the activity of research institutes.
4. An up-to-date list of abbreviations of institutes.

III. Dissemination of Information. This is a very important point with the Russians, and their system of dissemination appears to be well organized. We may note the following aspects:

(a) Abstract service maintained by various libraries by which scientists in various fields are kept abreast of the newest developments in science and technology.

(b) Publishing houses, organized in a way quite different from that in the U.S.A.

(c) A very thorough and effective system of making material published in foreign countries available to Russian readers.

(d) Information of general public interest in scientific and technical matters.

Statement of Work Proposed

It is proposed to produce a series of reference manuals in five parts, each part to contain one or more manuals dependent upon the quantity of material to be included in each manual and the established format of that material. The five parts or phases suggested are tentatively and generally outlined below:

Part I
- A. Text giving general description and interrelationships of U.S.S.R. system of education.
- B. Text giving general description and interrelationships of U.S.S.R. system of research.
- C. Text giving general description and inter-relationships of U.S.S.R. system of technology.

Part II Compiled lists of U.S.S.R.
- A. Academies
- B. Institutes
- C. Scientific-technical societies
- D. Universities
- E. Laboratories, stations, museums, observatories.
- F. Scientific-technical libraries.

For each of the items in the above lists the following information would be given insofar as available data permits:

a. Name

b. Abbreviation

c. Location - address

d. (In code) General type-such as research, institution, etc.

e. Period of existance

f. Code references to pages in manual prepared under Part III which would include detailed information as listed.

Part III Types of information in this part will vary with the types of organization listed in Part II above, but will generally include, insofar as possible, the following items:

1. History of development of organization.

2. Political and or technical affiliations.

3. Structure of organization and degrees offered, etc.

4. Reference and date of reference, source of information.

5. Number of personnel.

6. Types of personnel

7. Publications

8. Subjects, sciences or branches of technology involved.

Part IV - A. List of major bibliographies of U.S.S.R. science and technology.

B. List of sources used in manual compilation.

Part V - Subject index - cross references to include all manuals.

It is proposed to produce these basic reference manuals in a two year period, beginning with the effective operating date of the contract (date at which funds are available to project) as established. At least six months prior to the termination of this proposed contract steps should be taken to determine:

(a) If further extension of these studies is deemed advisable.

(b) Procedures and means by which material in the manuals will be kept up-to-date.

It is further proposed that this suggested research study if effected into a contract go into effect on or before September 30, 1953 in order to utilize trained personnel anf facilities available until that date.

Ability to do Work

Prime requisites in undertaking a research program of this nature are:

(a) Experienced scientific-technical leadership. 25X1A5a1 [redacted] and 25X1A5a1 [redacted] have been engaged in technical supervision of this type of work for past five years and have necessary security clearances.

(b) Experienced scientific-technical-translation personnel. 25X1A [redacted] 25X1A research personnel all expert Russian linguists and collectively representing a wide and varied background in science and technology. Most of these persons have been working with this research group for from one to three years.

(c) Experienced seeker-translation personnel. Established over three years ago the 25X1C4a [redacted] 25X1C4a office of the group is a small, compact operating unit under the intermediate supervision of [redacted] This functioning unit is constantly seeking for both old and new data as requested by the research group, copying this quickly with microfilm and shipping the microfilm to the research group.

(d) Other requirements for the undertaking of a project of this sort are adequate, immediately available, library facilities of U.S.S.R. material, adequate microfilm reproducing and report reproduction facilities, all of these being handled under adequate security provisions.

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